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ABSTRACT

Student satisfaction with the environments of five commuter colleges was studied at an eastern university. A reliable instrument was developed to profile 2,392 students' perceptions of 30 aspects of the college environment. To determine how student characteristics relate to their evaluations of the college environment, eight regression analyses were performed. Results indicated negative student perceptions of child-care facilities, parking, food, public transportation, a student center, and student activities. Regressing 15 student characteristics upon the environmental index scores showed the following: all students evaluated "pure" academic programs more highly than "applied" programs; nontraditional learners rated faculty and advising more highly than did traditional learners; blacks perceived academic support programs more positively than did non-blacks; and women saw the college culture more negatively than did men. For each of 124 questions, the correlation of the question with the scale score is presented, and results of the eight regression analyses are provided. It is concluded that the study provides a new instrument, a methodology, and empirical findings that promote understanding of the problem of matching college programs to commuter student needs. (Author/SW)

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# PROFILING THE NEEDS OF UNIVERSITY COMMUTER STUDENTS: NEW INSTRUMENTS, METHODS AND FINDINGS

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# PROFILING THE NEEDS OF UNIVERSITY COMMUTER STUDENTS: NEW INSTRUMENTS, METHODS AND FINDINGS

## ABSTRACT

The satisfaction of 2,392 students with the environments of five commuter colleges was studied at an Eastern university. A reliable instrument was developed to profile student perceptions of 30 aspects of the college environment. Results indicated negative student perceptions of child-care facilities, parking, food, public transportation, a student center and student activities. Regressing 15 student characteristics upon the environmental index scores showed that (1) all students evaluated "pure" academic programs more highly than "applied," (2) non-traditional learners rated faculty and advising more highly than traditional learners, (3) blacks perceived academic support programs more positively than non-blacks, (4) women saw the college culture more negatively than men.

# PROFILING THE NEEDS OF UNIVERSITY COMMUTER STUDENTS: NEW INSTRUMENTS, METHODS AND FINDINGS

Commuter college students differ from residential college students in their needs, in their "homelife," and in the skills and energy they bring to the college experience (Schuchman, 1966). Likewise, the learning environments of commuter and residential colleges differ profoundly (DeCoster, 1974). The importance of fitting the college experience to commuter student characteristics has been discussed by Chickering (1974) and others. But no empirical study has examined the fit between commuter student characteristics and the commuter college environment.

This report presents a study of the students and environments of five commuter colleges at an Eastern University. The research developed a survey instrument to profile student perceptions of the learning and social environment at these colleges. By comparing student characteristics to environmental characteristics, the study suggests ways to improve the fit between college and student.

## RESEARCH METHOD

### QUESTIONNAIRE DEVELOPMENT

Baird (1976) cautioned that studies of college environments frequently omit what he calls the "brass tacks" of the college experience: "...everyday policies and practices that are often the source of tremendous irritation among students. The registration materials, library hours, quality of job interviewing on campus, infrequency of informal dances, invited lecturers--all may appear to be trivial, but all contribute to the educational environment, and all can affect student progress more than we assume." The questionnaire developed during this research obtains student evaluations across the full range of their contacts with the college.

During the Fall of 1981, meetings were held to secure guidance from the Deans' Offices at the five participating colleges. Based upon these discussions, a preliminary questionnaire was drafted. The draft questionnaire was circulated to 42 managers at the colleges during February, 1982, and the draft was revised to include their comments.

The resulting survey was administered to 50 students in March. This pretest permitted an analysis of the reliability of student responses to the preliminary survey. Fifty-eight questions which failed the relevant statistical tests were dropped, and the final questionnaire was published.

## SAMPLE

The questionnaire was mailed to a 50-percent random sample drawn from students registered at the five colleges. This initial mailing occurred in April. A follow-up mailing was sent to non-respondents in May. Responses were received from 2,392 of the 5,102 students in the sample: a response rate of 47 percent.

## RELIABILITY OF THE RESPONSES

A scaling study was conducted to verify that the questions intended to measure discrete aspects of the college environment (e.g., academic advising, curriculum, library services, etc.) do so reliably.

First, student responses to the questions were factor analyzed. The SPSS type-PA2 method was employed with Varimax rotation of the solution. The purpose of the factor analysis was to verify that the responses cluster into independent, non-overlapping sets. The expected grouping of scores was found for 27 of the 29 sets of questions analyzed. The two exceptions were:

1. Business office scores combined with registrar scores
2. Student activities scores combined with student center scores

Second, Alpha Coefficients (Novick and Lewis, 1967) were computed to measure the reliability of the scales verified by the factor analysis.

The results of the scaling study are summarized in Table 1. Included are the Alpha coefficients for each of the 27 scales in the survey instrument. Alpha is a measure of internal consistency, i.e., the average intercorrelation of item scores over random samples of items from the set. Also presented are the correlations of item scores with the total score of all questions in each scale. As indicated, five statements were dropped to improve the reliability of four scales. The values shown in Table 1 demonstrate a satisfactory level of reliability, except for the housing scale.

STUDENT DATA

Information about each respondent was gathered from the University registration file. These data included:

1. College
2. Date of birth
3. Sex
4. Ethnicity: white, black, Puerto Rican, other Hispanic, Asian, American Indian
5. Attendance status: fulltime or parttime
6. Admission status: freshman, non-matriculated, transfer
7. EOF status: recipient or non-recipient

In addition, student data were gathered from the "About Yourself" portion of the questionnaire:

1. Major: Biglan (1973) classifications
2. Origin of transfer students

Table 1
RESULTS OF RELIABILITY ANALYSIS

| | Correlation of Question With Scale Score |
|---|---|
| ACADEMIC ADVISING (Alpha=.76) | |
| 9. Faculty are knowledgable about college requirements. | .53 |
| 10. Faculty advisors consider student preferences and problems in making course recommendations. | .57 |
| 11. Faculty advisors are available when needed. | .50 |
| 12. Faculty help students select their major. | .49 |
| 13. Major advisors are knowledgable about offerings and requirements. | .55 |
| ACADEMIC FOUNDATIONS (Alpha=.82) | |
| 14. Courses offered by the Academic Foundations Department prepare students adequately for subsequent course work. | .51 |
| 15. Academic Foundations Department counseling meets student needs. | .59 |
| 16. Learning center activities are helpful. | .66 |
| 17. The tutorial staff is helpful. | .69 |
| 18. The tutorial staff is available. | .63 |
| BOOKSTORE (Alpha=.69) | |
| 19. Textbooks are available on time at the college bookstore. | .45 |
| 20. The employees of the college bookstore are helpful. | .49 |
| 21. The bookstore has an adequate supply of non-text books. | .48 |
| 22. The bookstore has sufficient supplies. | .53 |
| 23. Prices at the college bookstore are competitive with those at off-campus stores. | .32 |

BUSINESS OFFICE AND REGISTRAR (Alpha=.80)

| | |
|---|---|
| 24. Cashier service is courteous. | .40 |
| 25. Bills are rendered accurately. | .42 |
| 89. Registration materials are made available on time. | .53 |
| 90. Registration is efficient and relatively painless. | .61 |
| 91. The registration staff is understanding and helpful. | .66 |
| 92. Course changes, drops and adds are processed accurately and efficiently. | .61 |
| 93. Grade reports are timely and accurate. | .49 |

CAREER DEVELOPMENT (Alpha=.73)

| | |
|---|---|
| 26. The Career Development Center helps students find part-time jobs. | .59 |
| 27. The Career Development Center is a valuable resource for students seeking employment after graduation. | .59 |

CHILD CARE

| | |
|---|---|
| 28. Child care facilities are available when I need them. | |

CLASS SIZE (Alpha=.73)

| | |
|---|---|
| 29. Lecture sections are of appropriate size. | .53 |
| 30. Recitation classes are of appropriate size. | .64 |
| 31. Seminars are of appropriate size. | .54 |
| 32. Laboratory classes are of appropriate size. | .42 |
| 33. Studio classes are of appropriate size. | .42 |

CLASSROOM ENVIRONMENT (Alpha=.69)

| | |
|---|---|
| 36. Laboratories contain sufficient equipment. | .49 |
| 37. Laboratories are open at convenient times. | .56 |
| 38. Students get enough personal attention from laboratory instructors. | .48 |

COMPUTER CENTER (Alpha=.82)

| | | |
|---|---|---|
| 39. Computer facilities are open at convenient times. | .59 | |
| 40. Computer center staff is helpful to students. | .65 | |
| 41. Computing facilities are conveniently located. | .52 | |
| 42. Enough computer equipment is available to meet student needs. | .06 | (dropped) |

CURRICULUM (Alpha=.75)

| | |
|---|---|
| 43. Courses at this college are relevant to my needs. | .55 |
| 44. The college offers a sufficient variety of majors. | .48 |
| 45. Graduation requirements are reasonable. | .54 |
| 46. Undergraduate major programs are academically strong. | .58 |
| 47. The core curriculum (required courses outside the major) provides valuable exposure to other disciplines. | .47 |

EQUAL OPPORTUNITY (Alpha=.76)

| | |
|---|---|
| 48. The college meets the academic needs of minority students. | .52 |
| 49. The college meets the social and cultural needs of minority students. | .52 |
| 50. Older students feel welcome at this college. | .39 |
| 51. Women students feel welcome at this college. | .37 |

FACULTY (Alpha=.86)

| | |
|---|---|
| 52. Professors demonstrate a commitment to teaching. | .69 |
| 53. Professors grade fairly. | .59 |
| 54. Professors make students active participants in the learning process. | .66 |
| 55. Professors have a caring attitude towards their students. | .77 |
| 56. Professors are accessible outside of class. | .57 |
| 57. Professors create excitement about their field of study. | .69 |

FINANCIAL AID (Alpha=.80)

| | |
|---|---|
| 58. There are sufficient opportunities to obtain financial aid for students who need it. | .57 |
| 59. Complete information about financial aid is available to interested students. | .55 |
| 60. Notifications of financial aid awards arrive on time. | .66 |
| 61. Financial aid payments arrive on time. | .54 |
| 62. Financial aid payments are correct. | .61 |
| 63. Sufficient work/study opportunities are available. | .49 |
| 64. Work/study jobs usually are interesting. | .34 |

FOOD (Alpha=.75)

| | |
|---|---|
| 65. The cafeteria in the student center is clean. | .53 |
| 66. The food is priced reasonably. | .56 |
| 67. The food is prepared well. | .64 |
| 68. Food is available when I need it. | .46 |

HEALTH SERVICES (Alpha=.86)

| | |
|---|---|
| 69. The health education program meets my needs. | .76 |
| 70. The Health Center provides good basic health care. | .82 |
| 71. The Health Center is conveniently located. | .66 |

HOUSING (Alpha=.49)

| | |
|---|---|
| 72. I have an acceptable place to live while attending college. | .20 |
| 73. The college offers enough help to students seeking housing. | .03 (dropped) |
| 74. I would live in dormitories if this college provided them. | .20 |

LIBRARY (Alpha=.69)

| | |
|---|---|
| 75. The library has the books and periodicals that students need. | .45 |
| 76. The library borrows books or articles from other libraries when it lacks documents requested by students. | .45 |
| 77. The library is open when students need it. | .52 |
| 78. The library staff is helpful. | .50 |

PARKING (Alpha=.66)

| | |
|---|---|
| 79. Adequate parking facilities are available on or near the campus. | .50 |
| 80. The cost of parking is reasonable. | .50 |

PERSONAL COUNSELING (Alpha=.87)

| | |
|---|---|
| 81. Professional counselors understand the realities of student life. | .79 |
| 82. Counseling services provide specific techniques for coping with problems. | .80 |
| 83. Counselors are available when students need to see them. | .70 |

PHYSICAL PLANT (Alpha=.65)

| | |
|---|---|
| 34. Classrooms are large enough. | .36 |
| 35. Classrooms are clean. | .51 |
| 84. Buildings and grounds are clean and well kept. | .45 |
| 85. Buildings are comfortably heated and ventilated. | .43 |

PUBLICATIONS (Alpha=.69)

| | |
|---|---|
| 86. University publications are obtained easily. | .54 |
| 87. The college catalog describes academic requirements accurately. | .50 |
| 88. Student newspapers provide adequate information about University activities. | .49 |

SAFETY (Alpha=.72)

| | | |
|---|---|---|
| 94. I feel safe on campus. | .65 | |
| 95. Students feel safe going to and from the campus during the day. | .62 | |
| 96. Students feel safe going to and from the campus at night. | .51 | |
| 97. The campus police are helpful and courteous. | .28 | |

SCHEDULING OF COURSES (Alpha=.56)

| | | |
|---|---|---|
| 98. The published schedule of classes is usually accurate. | .34 | |
| 99. Courses often are closed due to overenrollment. | .08 | (dropped) |
| 100. Courses are given in the semester when students need them. | .38 | |
| 101. Work and school schedules can be coordinated successfully. | .42 | |
| 102. There is usually sufficient time to get from one class to another. | .25 | |

STAFF/STUDENT RELATIONSHIPS (Alpha=.80)

| | | |
|---|---|---|
| 103. The college staff is helpful to students. | .73 | |
| 104. The college staff is courteous to students. | .75 | |
| 105. College regulations are not restrictive. | .48 | |

STUDENT ACTIVITIES AND CENTER (Alpha=.71)

| | | |
|---|---|---|
| 106. Extracurricular activities are offered at convenient times. | .47 | |
| 107. Social and cultural events on campus represent the diversity of student interests. | .48 | |
| 108. Students at this college just come to class and go home immediately afterward. | -.26 | (dropped) |
| 109. Many students attend cultural events in the nearby metropolitan areas. | .15 | (dropped) |

110. Sufficient recreational facilities are available on campus. .35

111. Student center hours meet my needs. .38

112. Student center programs are of interest to me. .56

113. I attend student center programs frequently. .42

STUDENT CHARACTERISTICS (Alpha=.78)

114. Students here are friendly to each other. .56

115. Most students here are serious about their studies. .53

116. Students often share intellectual and cultural interests. .63

117. Students from different backgrounds get along well at this college. .61

SUMMER SESSION

118. A sufficient variety of courses is offered during the summer sessions.

TRANSPORTATION (Alpha=.54)

119. Adequate transportation is available to commute to day classes. .36

120. Adequate transportation is available to commute to evening classes. .45

121. The cost of commuting to campus is inexpensive. .28

TUITION (Alpha=.80)

122. Tuition costs at this college are reasonable. .66

123. The University attempts to maintain low tuition costs. .66

SATISFACTION (OVERALL)

124. Based upon my experience so far, I feel I have made the right choice by enrolling in this particular college at Rutgers.

3. Student's method of transportation: walk, car, public transportation
4. Commuting distance
5. Living arrangements: alone, with roommates, with spouse, with spouse and children, with children, with parents
6. Weekly hours of employment
7. Class

The combination of questionnaire and registration file information provided 14 data elements to describe each student. All the data were combined in the research data base.

Three of the student data elements were combined to compute a non-traditional learner scale. Scores on this scale were computed as follows:

1. If the student lives with spouse and children, score = 1.
2. If the student attends part-time, score = 1.
3. If the student works, score = 1.
4. If the student lives with spouse and children, and either works or attends part-time, score = 2.
5. If the student works and attends part-time, score = 2.
6. If the student lives with spouse and children, works, and attends part-time, score = 3.

FACTOR ANALYSIS

To summarize the environmental data, the scale scores were factor analyzed. The standard SPSS type-PA2 method was employed with Varimax rotation of the solution. The results of the factor analysis are presented in Table 2.

Table 2
FACTOR ANALYSIS OF SCALE SCORES

| Scale | Factor 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| Academic Advising | .15 | .62* | .16 | .15 | .08 | .10 | .11 |
| Academic Foundations | .03 | .16 | .49* | .14 | .09 | .01 | .11 |
| Bookstore | .42* | .15 | .08 | .10 | .09 | .18 | .19 |
| Business Office & Registrar | .54* | .37 | .14 | .06 | .03 | .10 | .07 |
| Career Development | .07 | .01 | .42* | .02 | .01 | .15 | -.01 |
| Childcare | .03 | .03 | .10 | .05 | -.01 | .17 | .03 |
| Classize | .05 | .21 | .16 | .55* | .13 | .08 | .04 |
| Classroom Environment | .14 | .08 | .23 | .49* | .10 | .17 | -.01 |
| Computer Center | .17 | .02 | .22 | .06 | .00 | .16 | -.01 |
| Curriculum | .27 | .30 | .13 | .23 | .33 | .19 | .07 |
| Equal Opportunity | .10 | .12 | .14 | .12 | .45* | .18 | .03 |
| Faculty | .17 | .57* | .02 | .21 | .25 | .12 | .23 |
| Financial Aid | .29 | .10 | .33 | .09 | .01 | .12 | .13 |
| Food | .41* | .01 | .08 | .07 | .17 | .08 | .23 |
| Health Services | .11 | -.02 | .40* | .20 | .12 | -.04 | -.14 |
| Housing | .11 | .02 | .19 | .05 | .13 | -.08 | .02 |
| Library | .38* | .13 | .21 | .09 | .14 | .08 | .06 |
| Parking | .09 | .14 | -.06 | -.01 | .04 | .19 | .47* |
| Personal Counseling | .07 | .27 | .41* | .07 | .13 | .11 | .08 |
| Physical Plant | .31 | .20 | .04 | .47* | .09 | .03 | .23 |
| Publications | .48* | .15 | .23 | .14 | .20 | .14 | .01 |
| Safety | .24 | .17 | .15 | .18 | .10 | .02 | .40* |
| Scheduling | .36 | .25 | .07 | .17 | .16 | .34 | .15 |
| Staff-Student Relations | .37 | .45 | .12 | .15 | .16 | .15 | .08 |
| Student Center & Activities | .21 | .00 | .39 | .12 | .29 | .09 | .12 |
| Student Characteristics | .21 | .20 | .12 | .10 | .49* | .02 | .12 |
| Summer Session | .12 | .11 | .07 | .02 | .16 | .47* | .13 |
| Transportation | .22 | .02 | .20 | .06 | .07 | .26 | .29 |
| Tuition | .20 | .12 | -.06 | .12 | .09 | .28 | .18 |

*Included in index

As shown, seven interpretable factors were extracted. Loading uniquely on the first factor are five aspects of the student environment which have in common the logistics of college attendance:

1. Bookstore
2. Business Office and Registrar
3. Food
4. Library
5. Publications

Loading on the second factor are two items concerned with academics:

1. Academic advising
2. Faculty

Loading on the third factor are four important student life supports:

1. Academic foundations
2. Career development
3. Health services
4. Personal counseling

Loading on the fourth factor are three scales which relate to the physical environment:

1. Class size
2. Classroom environment
3. Physical plant

Loading on the fifth factor are two scales which define the college culture:

1. Equal opportunity
2. Student characteristics

Only a single scale loads uniquely on the sixth factor: summer session.

The seventh factor includes two scales:

1. Parking
2. Safety

INDEX COMPUTATION

Indices were computed by averaging the scale scores associated with each factor. These indices are called: "Logistics," "Academics," "Life Supports," "Physical Environment," "College Culture," "Summer School," "Parking and Safety" respectively.

STEPWISE REGRESSION ANALYSES

To determine how student characteristics relate to their evaluations of the college environment, eight regression analyses were performed. In the first seven, student data were regressed against each of the seven index scores across the sample of respondents. An eighth regression analysis was performed to relate the student data to question number 124 in the questionnaire. Question 124 asks for an evaluation of the students' overall satisfaction with their educational experience. The stepwise regression procedure identifies all student attributes which explain a significant portion of index or satisfaction variance.

# FINDINGS

## COLLEGE AND UNIVERSITY PROFILES

The possible range of student evaluations was 5 maximum through 1 minimum: 5=agree strongly, 4=agree, 3=neutral, 2=disagree, 1=disagree strongly. Responses of 0 (no experience with or don't know) were excluded from computation of the mean scores. Since all survey items retained in the analyses are positively stated, a higher level of student agreement is equivalent to more positive student evaluations.

College average scores on each of the 27 questionnaire scales were reported to the five participating colleges. Also reported were scores for three questions dealing with child care, summer session, and overall student satisfaction. The detail provided by 30 distinct evaluations of each college should prove useful to college administrators.

University-wide average scores are presented in Table 3.

## REGRESSION ANALYSES

The results of the eight regression analyses are shown in Tables 4 through 10. In each case the index of interest is indicated at the top and the significant predictors of the index score are listed down the left side of the table.

Table 3
ENVIRONMENTAL PROFILE: AVERAGE SCORES ACROSS FIVE COLLEGES
(n=2392)

| Scale | Mean Score | Std. Error |
|---|---|---|
| Academic Advising | 3.34 | .01 |
| Academic Foundations | 3.27 | .01 |
| Bookstore | 3.38 | .01 |
| Business Office & Registrar | 3.56 | .01 |
| Career Development | 3.18 | .01 |
| Childcare | 2.97 | .01 |
| Classize | 3.35 | .01 |
| Classroom Environment | 3.27 | .01 |
| Computer Center | 3.19 | .01 |
| Curriculum | 3.71 | .01 |
| Equal Opportunity | 3.59 | .01 |
| Faculty | 3.53 | .01 |
| Financial Aid | 3.15 | .01 |
| Food | 3.19 | .01 |
| Health Services | 3.36 | .01 |
| Housing | 3.32 | .01 |
| Library | 3.86 | .01 |
| Parking | 2.57 | .02 |
| Personal Counseling | 3.16 | .01 |
| Physical Plant | 3.46 | .01 |
| Publications | 3.73 | .01 |
| Safety | 3.21 | .01 |
| Scheduling | 3.47 | .01 |
| Staff-Student Relations | 3.68 | .01 |
| Student Center & Activities | 3.14 | .01 |
| Student Characteristics | 3.75 | .01 |
| Summer Session | 3.02 | .02 |
| Transportation | 3.13 | .01 |
| Tuition | 3.40 | .01 |
| Overall Satisfaction | 4.00 | .01 |

All the regressions and coefficients presented are significant at the .05 level. Reading from the left, the first column of numbers is the cumulative multiple correlation of the predictors with the index score across respondents. The second column shows the cumulative amount of index variance explained by the predictors on a scale from 0 to 1.0. In all cases, the proportion of variance explained is relatively small, ranging from one to ten percent.

Logistics Index

Table 4 shows those variables which are associated significantly with the logistics index. Student evaluations of the bookstore, business office and registrar, food, library, and publications are related to two student characteristics:

1. Students attending College of Arts and Sciences "A" perceive these functions more positively
2. Students at the Professional College perceive them more negatively.

Academics Index

Table 5 shows that academic advising and faculty are perceived more positively by:

1. Students in pure disciplines
2. Non-traditional learners

Stated conversely, faculty and advising are evaluated more negatively by:

1. Students in applied disciplines
2. Traditional learners

Table 4
REGRESSION OF STUDENT DATA ON LOGISTICS INDEX

| Predictors | Multiple Correlation | Variance Explained | Simple Correlation | Beta |
|---|---|---|---|---|
| College of Arts and Sciences "A" | .19 | .03 | .19 | .18 |
| Undergraduate Professional College | .21 | .04 | -.11 | -.08 |

Table 5
REGRESSION OF STUDENT DATA ON ACADEMICS INDEX

| Predictors | Multiple Correlation | Variance Explained | Simple Correlation | Beta |
|---|---|---|---|---|
| Pure versus applied discipline | .14 | .02 | .14 | .16 |
| Nontraditional learner | .20 | .04 | .13 | .15 |

Table 6
REGRESSION OF STUDENT DATA ON LIFE SUPPORTS INDEX

| Predictors | Multiple Correlation | Variance Explained | Simple Correlation | Beta |
|---|---|---|---|---|
| Attend fulltime versus part-time | .22 | .04 | .22 | .18 |
| Black | .26 | .06 | .11 | .15 |
| Drives car to school | .28 | .07 | -.15 | -.09 |
| Evening College "B" | .29 | .08 | -.12 | -.09 |

The classification of disciplines as "pure" versus "applied" is based upon the extensive work of Biglan (1973). In Biglan's research, "...three dimensions were found to be common to the classification of subject matters by both university and liberal arts colleges."

"The first dimension reflects the existence of a paradigm in a specific academic discipline and is labeled 'hard' versus 'soft.' A paradigm, a concept initially developed by Kuhn (1962), represents the extent to which a discipline has a commonly agreed upon set of problems for study and approved methods for their exploration. Traditionally, the hard or more scientific areas of study, such as the physical and biological sciences, possess more clearly delineated paradigms. These hard disciplines are at one end of a continuum on Biglan's first dimension and soft disciplines, such as the humanities and education, are at the other end."

"Biglan's second dimension reflects a discipline's concern with the practical application of its subject matter, and is labeled 'pure' versus 'applied.' At one end of this dimension are such fields as education, accounting, finance, and engineering which tend to be concerned with the practical application of knowledge. At the opposite end of this dimension are disciplines that traditionally have less concern with practical application (e.g., physical sciences, mathematics, languages, history, and philosophy)."

"The third dimension reflects an academic discipline's involvement with living or organic objects of study and is labeled 'life' versus 'nonlife' systems. Those disciplines placing greater emphasis upon the study of living systems (e.g., agriculture, biological sciences, social sciences, education) are located at one end of this dimension, while the physical sciences, engineering, languages, computer science, and mathematics are located toward the opposite end."

In a study of academic department performance, Bare (1980) found that Biglan's dimensions predicted six departmental outcomes. More recently, Smart and Elton (1982) demonstrated the utility of Biglan's model in a national study involving 301 institutions.

Life Support Index

Table 6 shows that the life support services (academic foundations, career development, health services, and personal counseling) are viewed more positively by students who are:

1. Full time
2. Black

The life support activities are viewed more negatively by students who:

1. Commute by car
2. Attend Evening College "B"

Physical Environment Index

Perceptions of the physical environment (classize, classroom environment, and physical plant) are predicted by the two variables shown in Table 7. The physical environment is viewed more positively by students who:

1. Attend College of Arts and Sciences "B"
2. Are upperclassmen

College Culture Index

Only a single variable predicts the college culture index (equal opportunity and student characteristics). That variable is gender (Table 8). Males evaluate the college culture positively and females perceive it more negatively.

Summer School

Table 9 lists the predictors of the summer school question. Summer school course variety is more positively appraised by students who are upperclassmen.

The following are more dissatisfied with summer course offerings:

1. Students in hard disciplines
2. Students who live with roommates
3. Students attending College of Arts and Sciences "B"

Parking and Safety Index

Table 10 shows that parking and safety are perceived more favorably by students who:

1. Attend Evening College "B"
2. Are nontraditional learners
3. Are upperclassmen

Table 7
REGRESSION OF STUDENT DATA ON PHYSICAL ENVIRONMENT INDEX

| Predictors | Multiple Correlation | Variance Explained | Simple Correlation | Beta |
|---|---|---|---|---|
| College of Arts and Sciences "B" | .12 | .01 | .12 | .12 |
| Upperclassman versus lower classman | .15 | .02 | .10 | .09 |

Table 8
REGRESSION OF STUDENT DATA ON COLLEGE CULTURE INDEX

| Predictors | Multiple Correlation | Variance Explained | Simple Correlation | Beta |
|---|---|---|---|---|
| Gender: male versus female | .12 | .01 | -.12 | -.12 |

Table 9
REGRESSION OF STUDENT DATA ON SUMMER SCHOOL INDEX

| Predictors | Multiple Correlation | Variance Explained | Simple Correlation | Beta |
|---|---|---|---|---|
| Hard versus soft discipline | .12 | .01 | -.12 | -.11 |
| Upperclassman versus lowerclassman | .17 | .03 | .10 | .12 |
| Lives with roommates | .19 | .03 | -.09 | -.09 |
| College of Arts and Sciences "B" | .21 | .04 | -.09 | -.08 |

Table 10
REGRESSION OF STUDENT DATA ON PARKING AND SAFETY INDEX

| Predictors | Multiple Correlation | Variance Explained | Simple Correlation | Beta |
|---|---|---|---|---|
| Evening College "B" | .25 | .06 | .25 | .18 |
| Nontraditional learner | .29 | .08 | .23 | .18 |
| Upperclassman versus lowerclassman | .31 | .10 | .10 | .12 |
| Drives a car to school | .32 | .10 | -.04 | -.08 |

Parking and safety are perceived more negatively by students who travel by car.

Overall Student Satisfaction

There were no significant predictors of responses to Question 124. It bears noting that the mean score on this question is higher than any other index average (4.00, Table 3). On balance, students "agree" that they have made the right choice of college.

CONTENT ANALYSIS OF STUDENT COMMENTS

Items 125 and 126 in the survey instrument ask the student to identify the most favorable and least favorable aspects of his/her college experience. Student responses to these open-ended questions were coded into categories established by content analysis. The results are presented in Tables 11 and 12.

Table 11
MOST FAVORABLE ASPECTS OF COLLEGE EXPERIENCE

| | Percent Citing |
|---|---|
| 1. Exposure to new ideas, people | 25.0 |
| 2. Good instructors | 18.6 |
| 3. Opportunity for personal growth | 18.5 |
| 4. Courses, curriculum | 9.9 |
| 5. College meets my needs generally | 7.5 |
| 6. Opportunity to develop friendships | 4.1 |
| 7. Extracurricular activities | 3.4 |
| 8. Opportunity to work while attending | 2.9 |
| 9. Convenient location | 2.9 |
| 10. Academic excellence | 2.1 |
| 11. Low cost | 1.9 |
| 12. Counseling, advising | 1.7 |
| 13. Rutgers reputation | 1.5 |

Table 12
LEAST FAVORABLE ASPECTS OF COLLEGE EXPERIENCE

| | Percent Citing |
|---|---|
| 1. Courses, curriculum | 15.6 |
| 2. Poor instructors | 14.0 |
| 3. Parking | 9.0 |
| 4. Physical facilities | 7.5 |
| 5. Safety | 6.5 |
| 6. Undesirable location | 6.2 |
| 7. Commuting problems | 5.6 |
| 8. Registration problems | 5.5 |
| 9. Bureaucracy, red tape | 5.2 |
| 10. Poor social life | 4.3 |
| 11. Course scheduling | 4.2 |
| 12. Counseling, advising | 3.1 |
| 13. Unfriendly students | 3.0 |
| 14. Personal adjustment problems | 2.1 |
| 15. Poor recreational facilities | 2.0 |
| 16. No college housing | 1.8 |
| 17. High cost | 1.5 |
| 18. Grading | 1.4 |
| 19. Bad food | 1.2 |
| 20. Irrelevant learning | 0.2 |

# CONCLUSIONS

## INSTRUMENT DEVELOPMENT

Commercially available environmental surveys typically were developed by factor analyzing large pools of statements or questions to identify factors, and hence scales, post hoc. Consequently, these questionnaires mix questions which tap aspects of teaching, curriculum, student services and culture in the same dimensions and scales. Scores produced by these instruments are difficult to interpret, and often are impossible to use for change planning, since it is seldom clear precisely what was measured, let alone how to improve low scores.

In contrast, the instrument developed under this study was designed a priori to measure over 30 discrete aspects of the college environment. Statements were written to operationalize aspects of each dimension in ways easily perceived by students and administrators.

The first factor analysis conducted in this study demonstrated the relative independence of the scales built into the instrument. The scaling study demonstrated the reliability of the instrument and the regression study provided evidence of concurrent validity. With some refinement, the questionnaire should prove useful in profiling the environments of commuter colleges generally. With the addition of appproprite items focused upon residential living, the instrument also could be used to profile the full range of post-secondary institutions with a hitherto impossible level of clarity and reliability.

ENVIRONMENTAL PROFILES

What do the environmental profiles suggest are the salient problems at the five colleges? Table 13 abstracts the scale scores which average below 3.0 from the environmental profiles of the five colleges. Childcare and parking facilities are negatively perceived at four of the five colleges. In individual colleges, summer session course offerings, food, public transportation, the student center and student activities are viewed negatively.

The pervasiveness of the parking problem is underscored by the fact that parking was the third most frequently cited "least favorable aspect of my college experience" (Table 12).

Within individual colleges, the environmental profiles should be scrutinized by administrators of the units profiled. Relatively low scores may suggest the need for attention. There is no reason to restrict performance improvements to services which score below 3.0 on a student survey. However, the six dimensions of the college environment listed in Table 13 clearly merit some interest.

ACADEMIC PROGRAMS

What can one infer about the fit between students and the academic programs at the participating colleges? Across the five colleges (Table 3), curriculum and faculty receive relatively high scores.

Table 13
AVERAGE SCALE SCORES BELOW 3.0 BY COLLEGE

| College of Arts and Sciences "B" | College of Arts and Sciences "A" | Undergrad. Prof. Coll. | Evening College "B" | Evening College "A" |
|---|---|---|---|---|
| Childcare (2.97) | | Childcare (2.93) | Childcare (2.92) | Childcare (2.96) |
| Parking (2.33) | Parking (2.43) | Parking (2.48) | | Parking (2.85) |
| Summer Session (2.89) | | Food (2.82) | | Student Center & Activities (2.92) |
| | | Transportation (2.99) | | |

Moreover, exposure to new ideas, faculty, personal growth, and curriculum are the four most frequently cited "most favorable aspects of my college experience" (Table 11). This cluster suggests a favorable evaluation of academic programs generally.

The regression study produced several relevant findings. First, students in pure disciplines tend to evaluate faculty and academic advising more positively than those in applied disciplines. In these colleges, pure disciplines are roughly comparable to the traditional liberal arts; whereas applied disciplines are more vocationally oriented. If academic improvements are needed, the potential gain appears to lie in the applied disciplines.

The second important finding of the regression study is a non-finding. Variance in the academics index was not related to any student ethnic or demographic characteristic. The faculty is not percieved differentially by minority or female students. If the needs of such students were not being broadly met, negative correlations would be expected in the regressions.

The only negative data about academic programs elicited by the study appear in Table 12. Problems with courses and curriculum or faculty are the two most frequently cited "least favorable aspects of my college experience." Examination of a large sample of questionnaires suggests that these comments are frequently related to a single professor or course.

NEEDS OF NON-TRADITIONAL STUDENTS

A principal thrust of the literature is the failure of commuter colleges to serve the needs of non-traditional clients. What do the findings suggest about how well these colleges meet the needs of their non-traditional learners?

The non-traditional student scale emerged as a predictor of the academics index (Table 5 ). As defined by the scale, non-traditional students perceive faculty and academic advising more positively than traditional students.

Ethnicity emerged as a predictor of the life supports index (Table 6 ). Blacks perceive academic foundations, career development, health services, and personal counseling more positively than non-black students.

Although ethnicity fails to emerge as a negative predictor of any index, gender does. Women evaluate the college culture more negatively than men (Table 8 ). The college culture index includes the equal opportunity and student culture scales. Review of item content suggests that this finding has a double meaning. Women feel that (1) the colleges fail to meet the academic and cultural needs of women and (2) that women remain relatively isolated in the student culture. This finding may be the most serious and difficult issue identified by the research.

## UTILITY OF THE STUDY

Liu (1980) reports that, despite increasing researcher interest, factors contributing to commuter student satisfaction with their educational experiences remain poorly understood. The study described in this report provides a new instrument, a methodology, and a set of empirical findings which combine to improve our understanding of the problem of matching college programs to commuter student needs. Hopefully, the findings will dispel some myths about commuter students at these colleges, and stimulate some improvements in their college environments.

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